



# **Material Readiness Modeling Using Data Analysis To Improve Weapon System Sustainment**

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# MPP&R Materiel Readiness Responsibilities

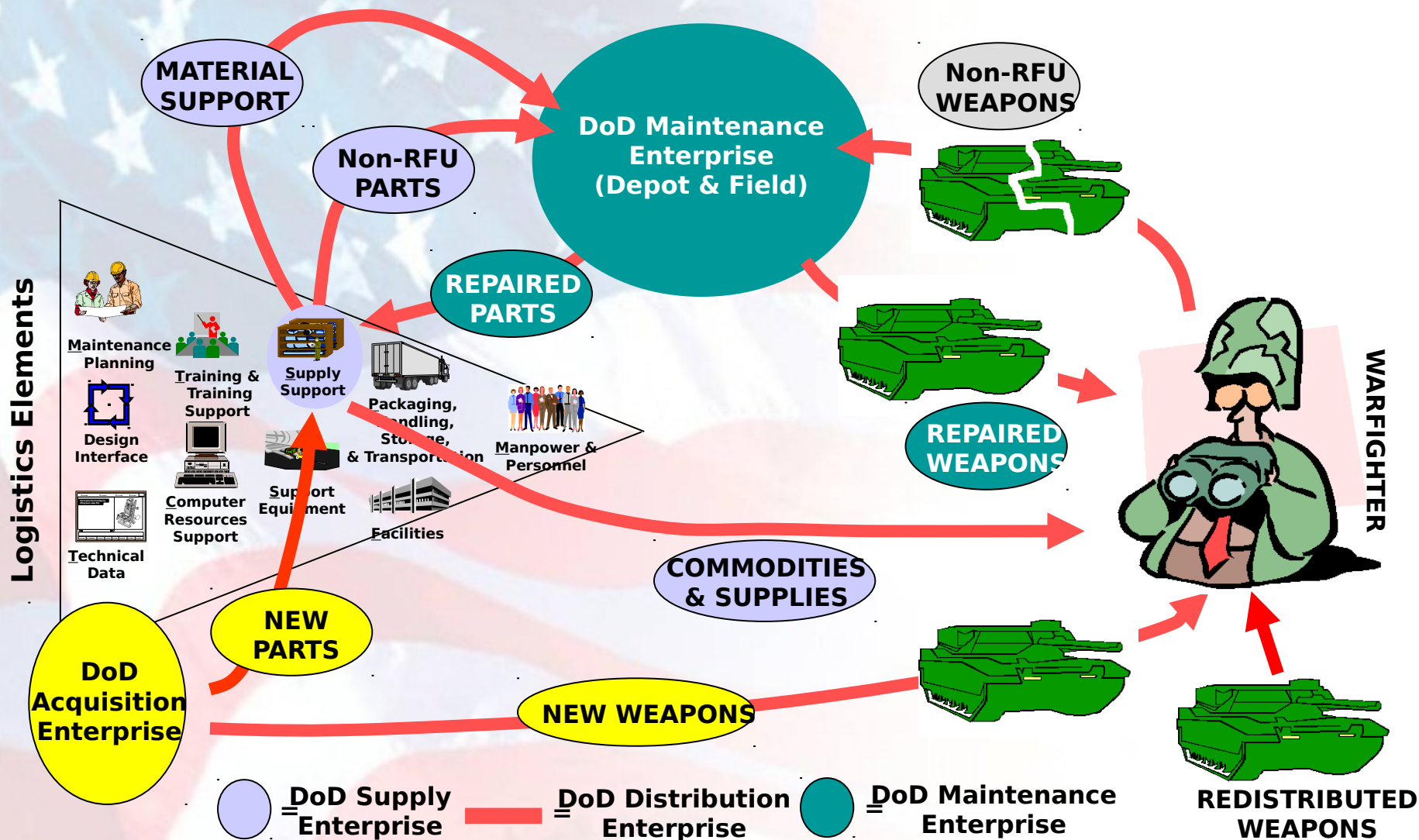
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- **Provide Centralized Maintenance Policy & Management Oversight**
  - All Weapon Systems & Military Equipment
  - Establish & Maintain Maintenance Policies & Programs
    - Managerially And Technologically Sound
    - Adequately Resourced
    - Maintain Necessary Levels Of Weapon System & Equipment Readiness
- **Principal Advisor For Materiel Readiness & Sustainment Policies/Procedures**
  - Major Weapon Systems & Combat Support Equipment
  - Integrates Materiel Readiness Aspects Across L&MR
  - Influence Resource Allocation Decisions
  - Enhance Materiel Readiness Policies & Procedures
  - Provide Materiel Readiness Oversight
  - Initiate Focused Studies



# Maintenance, Supply and Transportation Must be Integrated to Achieve Sustainment Performance Objectives





# Integrated Sustainment Performance Objectives

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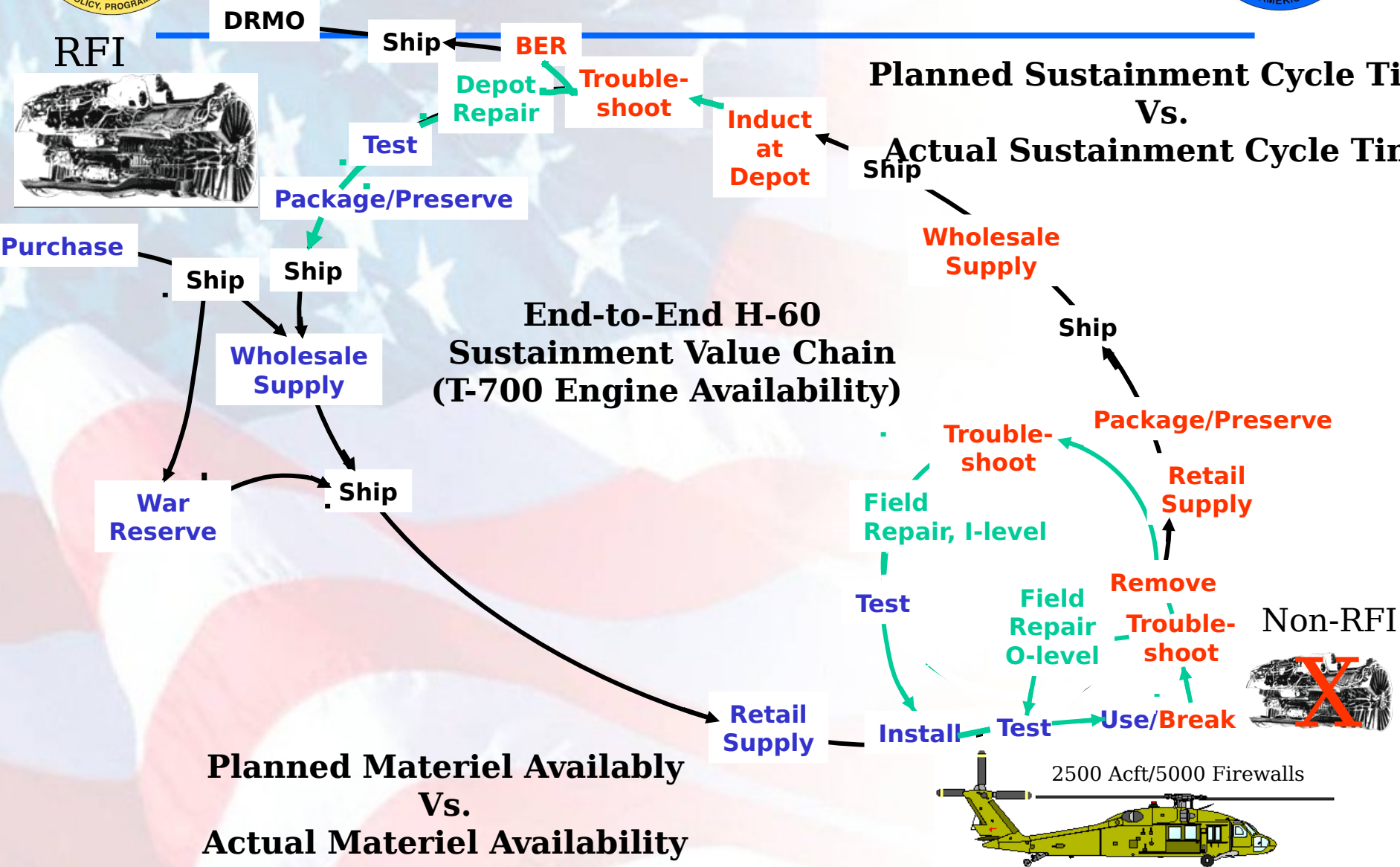


- What matters to the Warfighter?
  - Materiel that should be available is available
    - At the planned location
    - At the planned time
    - In the planned material condition
  - Materiel that becomes unavailable is repaired or replaced
    - Within the planned sustainment cycle time
    - At the planned sustainment rate
    - At the planned sustainment cost





# Evaluating the Performance of the Sustainment Value Chain: Cross-Functional Metrics





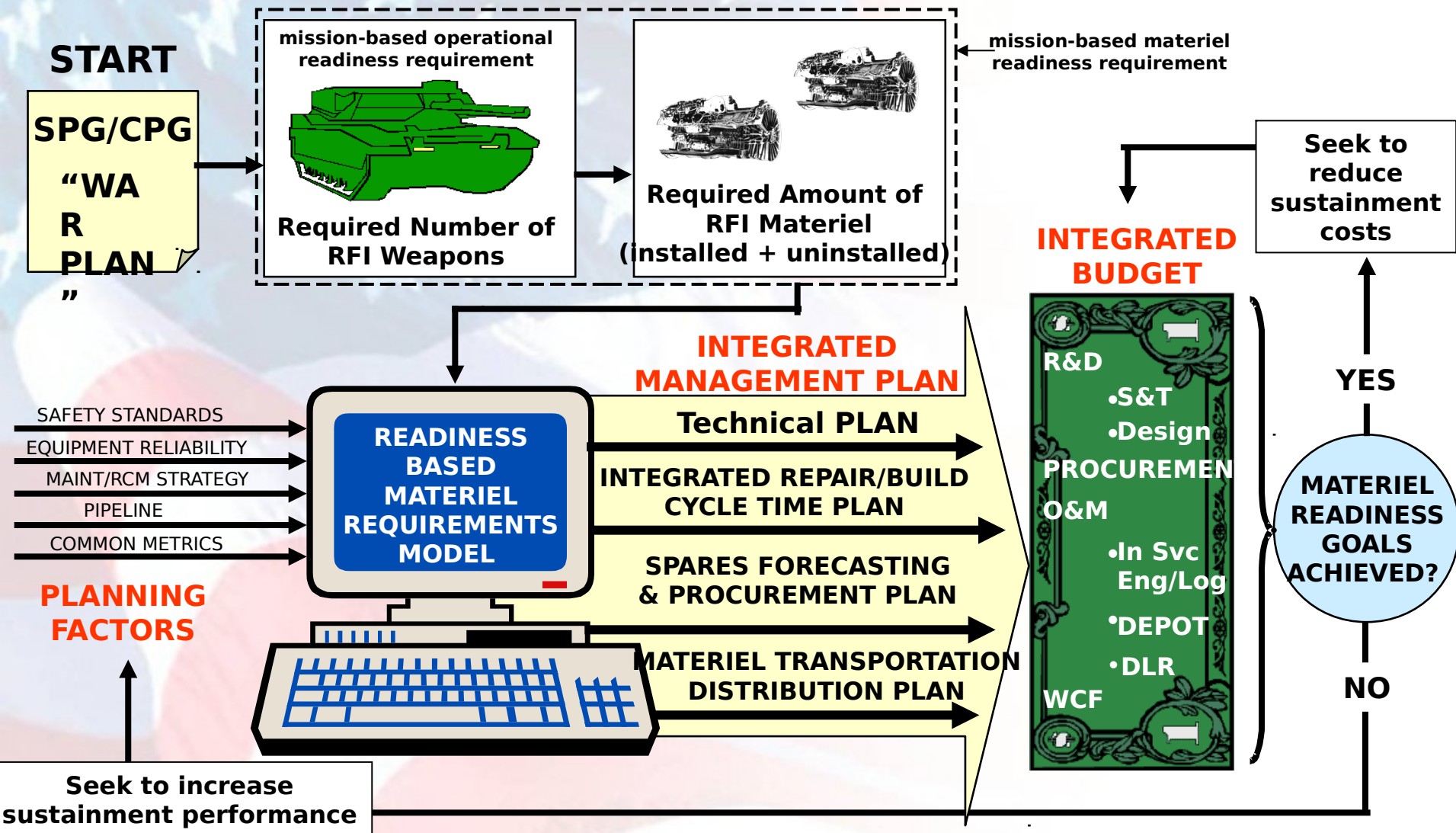
# Analytical Modeling Provides Insight Into Sustainment Value Chain Performance

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- Baselines the planned level of performance
  - What's the “should be”
- Establishes a performance data collection strategy
  - Capitalize on existing data reporting requirements?
  - Establish new data reporting requirements?
- Quantifies the actual level of performance using reported data
  - What's the “as is”
- Enables root-cause and cause-and-effect analyses in those cases where “actual” does not match “planned”
  - For the entire end-to-end sustainment value chain
  - For any discrete function within the sustainment value chain
  - For any interface between functions within the sustainment value chain
    - Analysis of transactions
- Model outputs linked to Service Materiel Readiness budgets

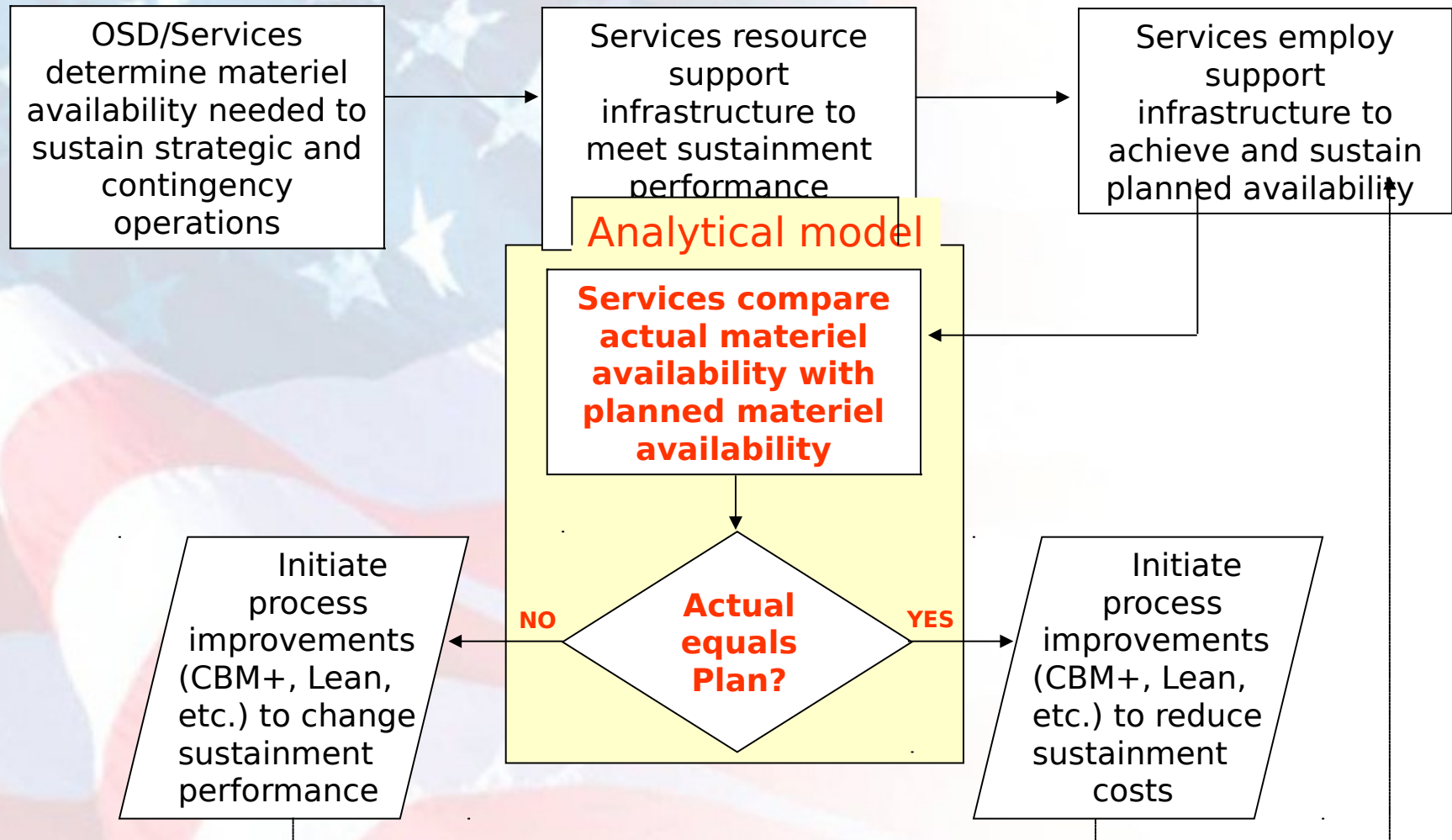


# Building the Optimum Sustainment Budget





# Sustaining Optimum Materiel Availability

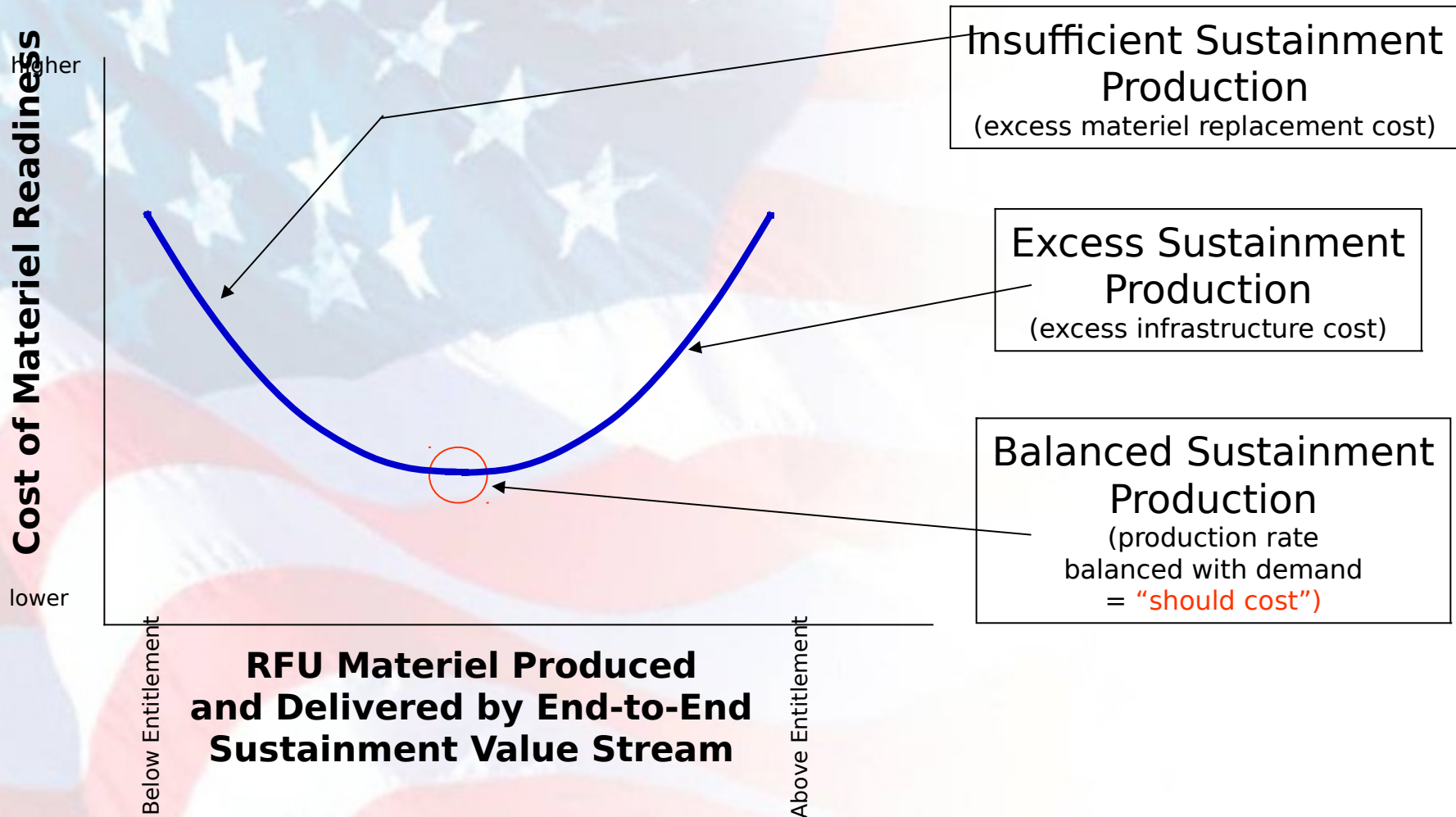






# Resources and Readiness

## How much should Materiel Readiness cost?





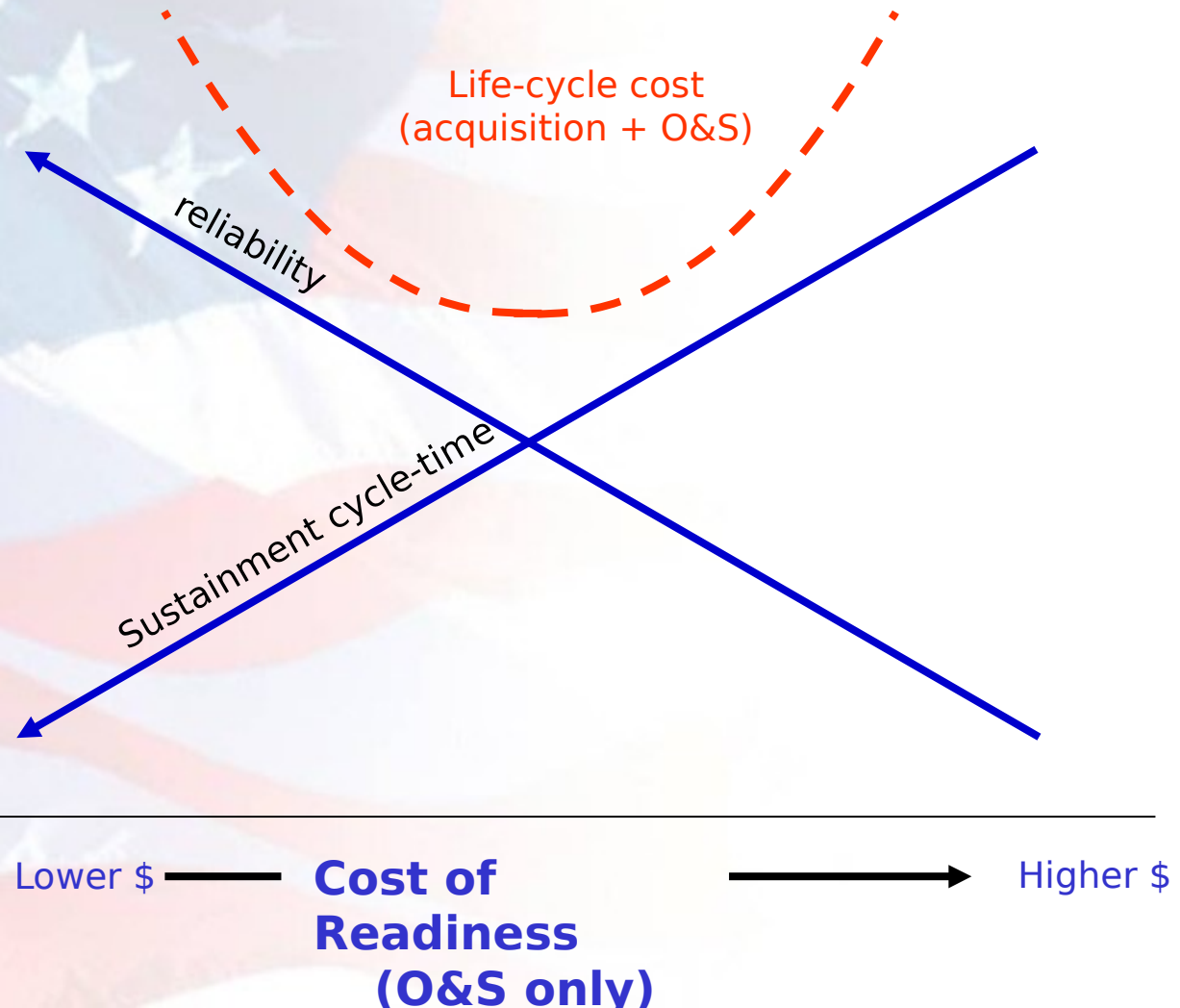
# Improving Materiel Readiness Reliability, Cycle-Time, Cost

**Drive reliability  
up to  
optimum level**

more

**Drive  
sustainment  
cycle time  
down to  
optimum level**

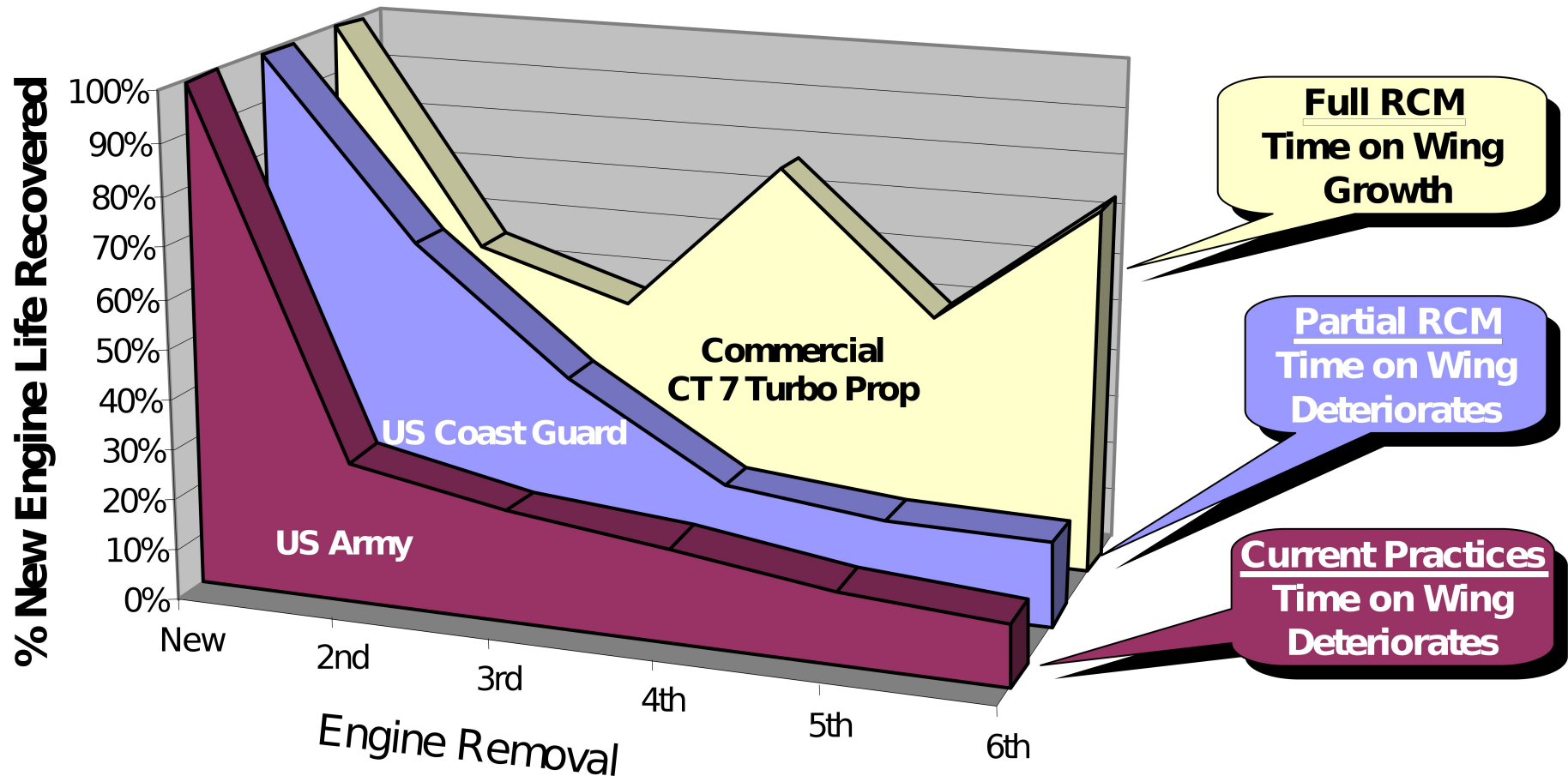
less



# T700 Engine Life Recovered After Repair

RCM =  
Reliability  
Centered  
Maintenance

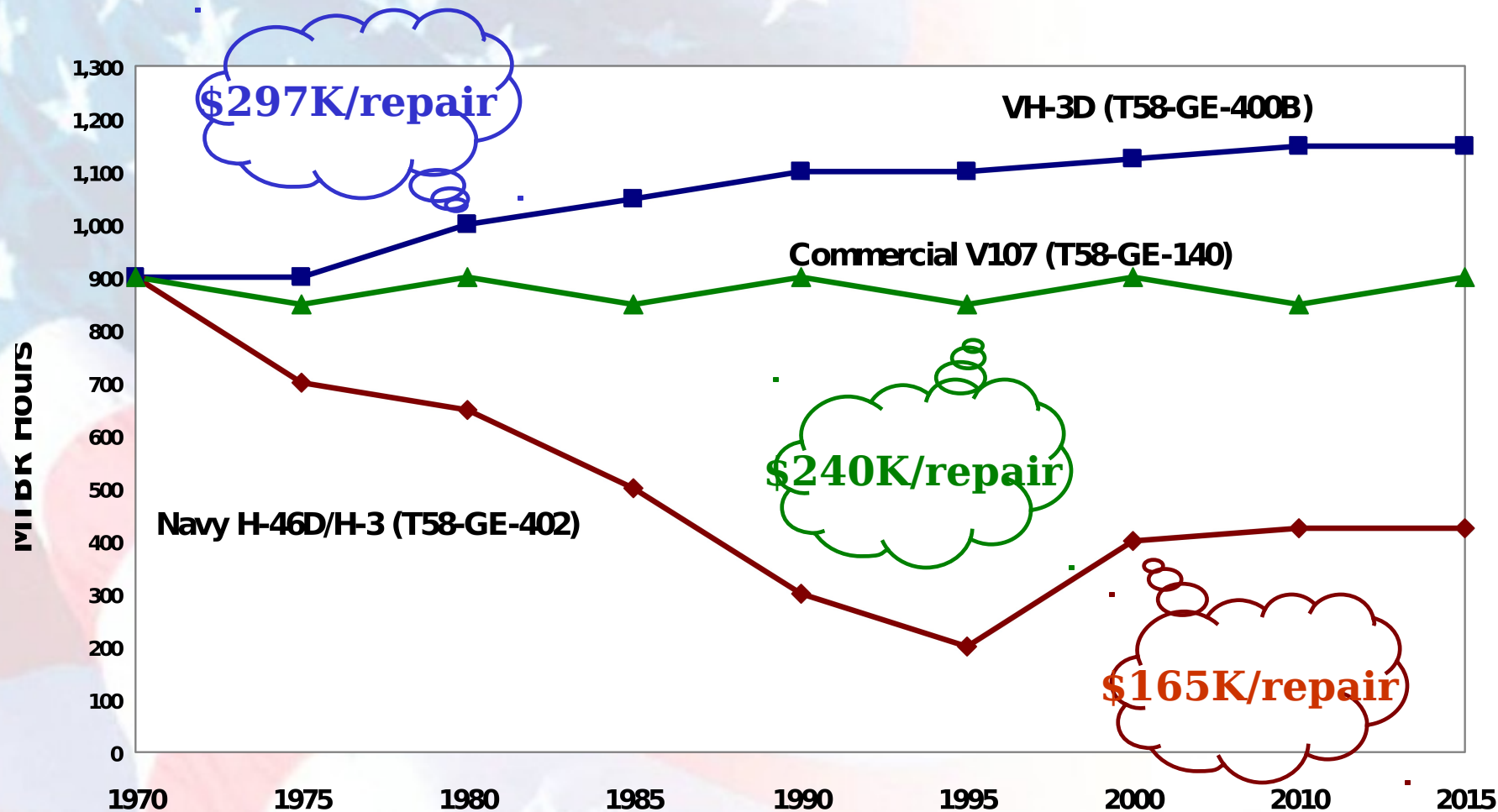
## Reliability Centered Maintenance vs. Current On-Condition Practices



3X+ improvement in Time on Wing (TOW) with Comprehensive Reliability Centered Maintenance vs. Current On-Condition Practices



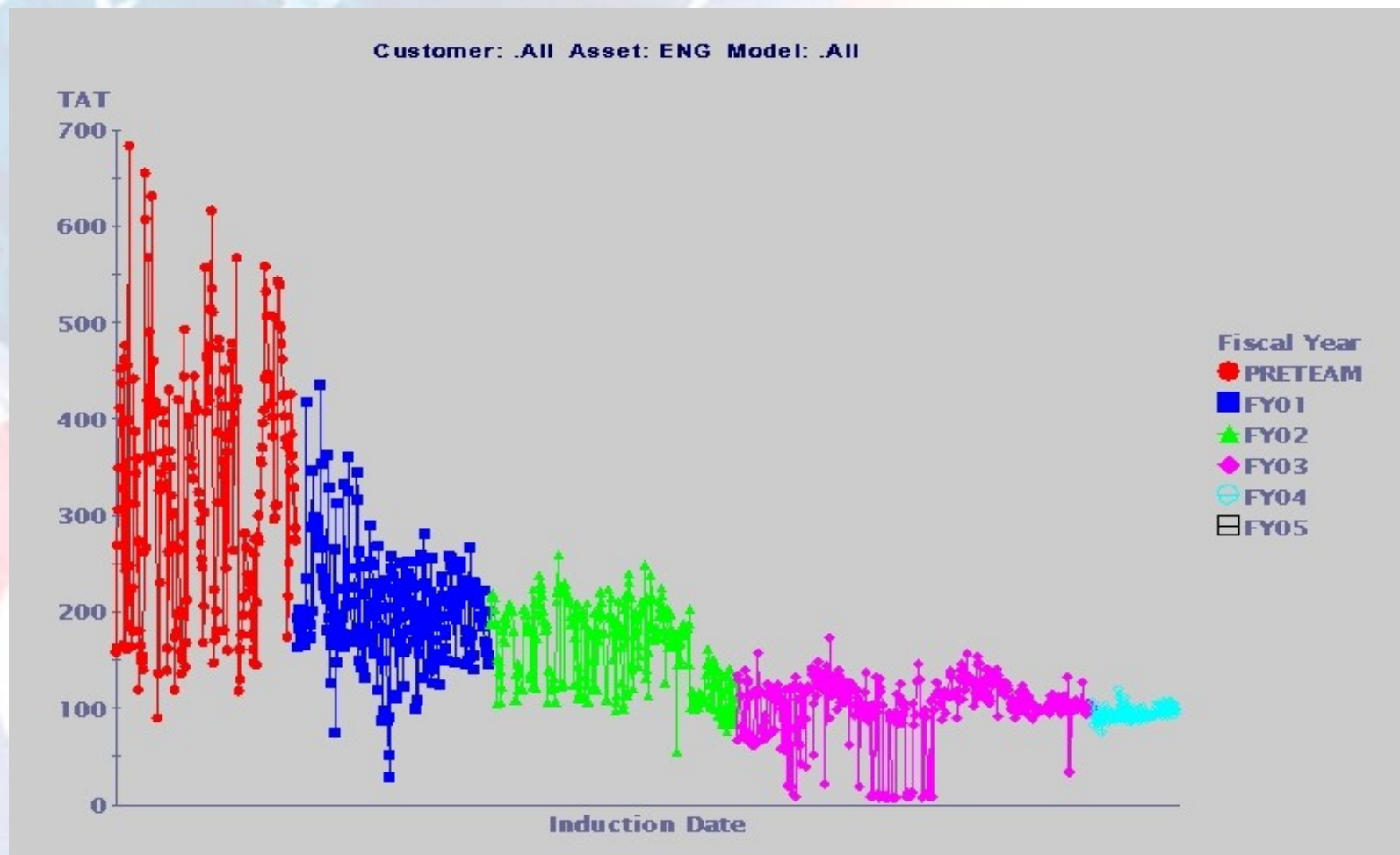
# H46/T58 Engine Repair/ Time on Wing Tradeoffs







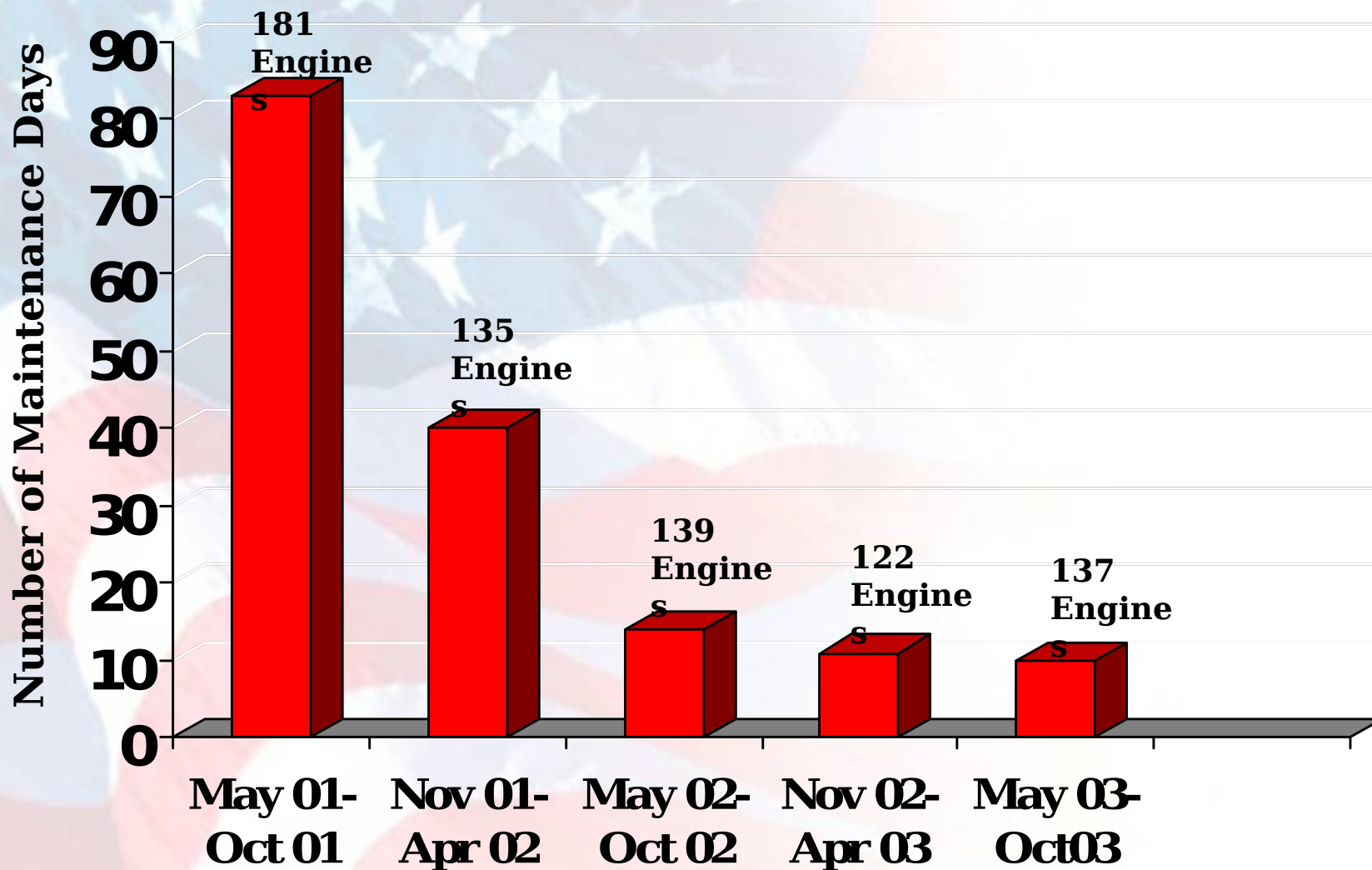
# CCAD T700 Engine TAT Run Chart



*Reduction in Mean & Variation Continue In 2004!*



# Optimized Materiel Turnaround Time/Cycle Time





# MATCHING RESOURCES TO REQUIREMENTS



- **BUDGET BASED ON READINESS REQUIREMENTS**
- **INSTITUTIONALIZE TOTAL OWNERSHIP COST PERSPECTIVE**
  - : **INTEGRATE BUDGET ACTIVITIES AND FUNDING LINES**

## Technical

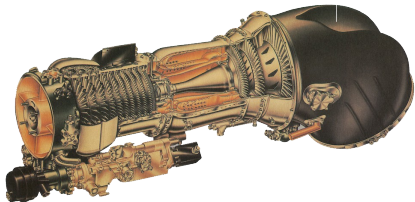
- **R&D**
  - **Component Improvement**
  - **S&T**

## Technical/Logistics

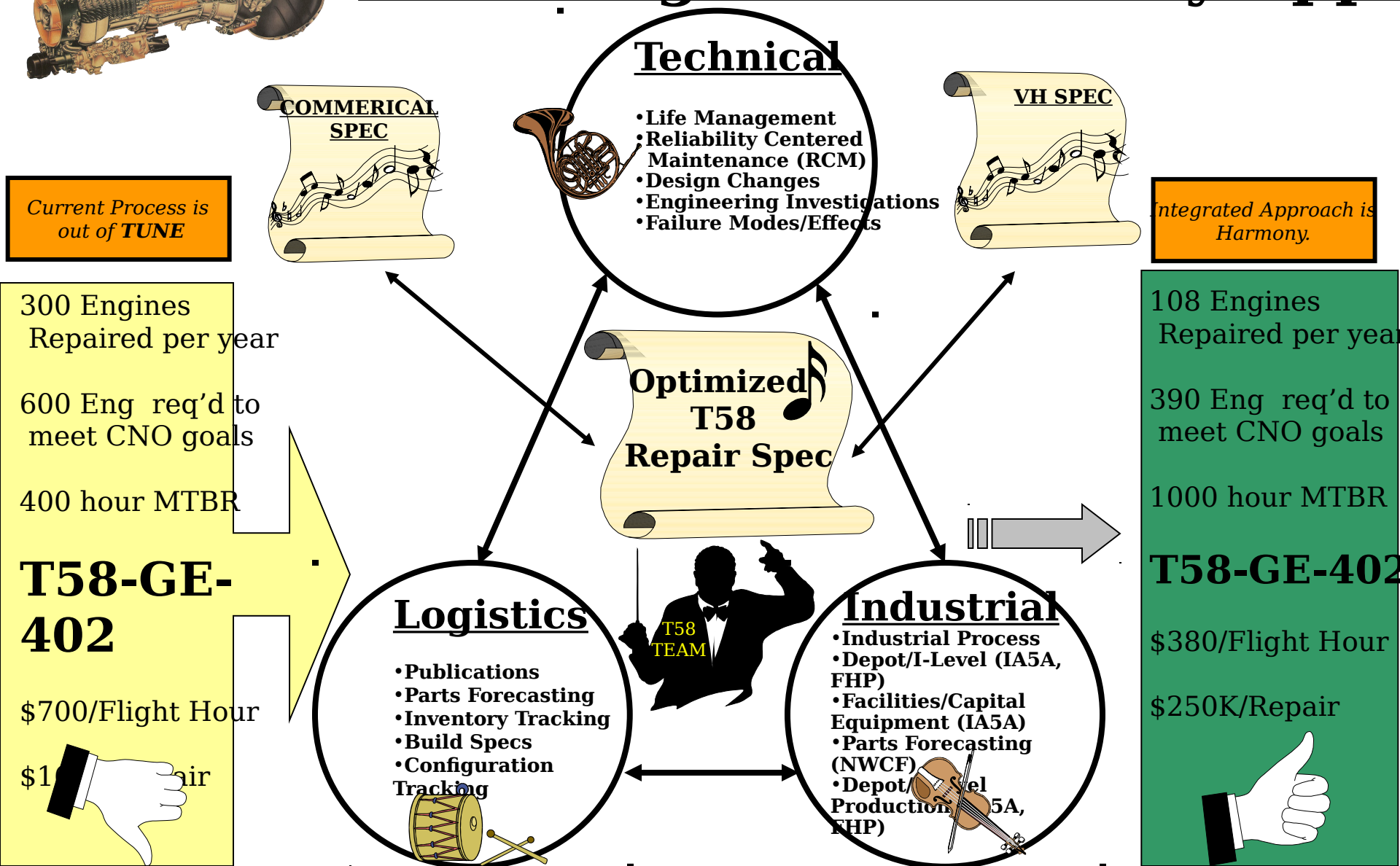
- **APN**
  - **Engineering Change Kits**
  - **SPARES**
  - **COMMON SE**
- **OMN, OMN (R), OMN (OS)**

## Technical/Logistics/ Industrial

- **In Service Engr/Logistics**
- **"D" REPAIR**
- **PRESERVATION & DISPOSAL**
- **Supply**
- **Field Repair**



# T58 Integrated Recovery Approach



***Integrated Approach is HARMONY!***





# SUMMARY

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## OSD and DoD Components

- Document mission-based materiel readiness requirements
- Resource to efficiently achieve and sustain planned materiel availability in support of required readiness
- Evaluate the performance of the sustainment value chain
- If performance matches plan, seek to reduce the cost of sustainment; if performance is below plan, seek to increase value chain performance

## Five Pillars for Sustaining Materiel Readiness

- Policy
- Measuring materiel readiness
- Optimizing materiel reliability
- Optimizing sustainment turnaround time/cycle time
- Balancing resources